

ATTORNEY DOCKET NO.: 05015.0365U1

App. Serial No.: 09/662,965

IN THE CLAIMS

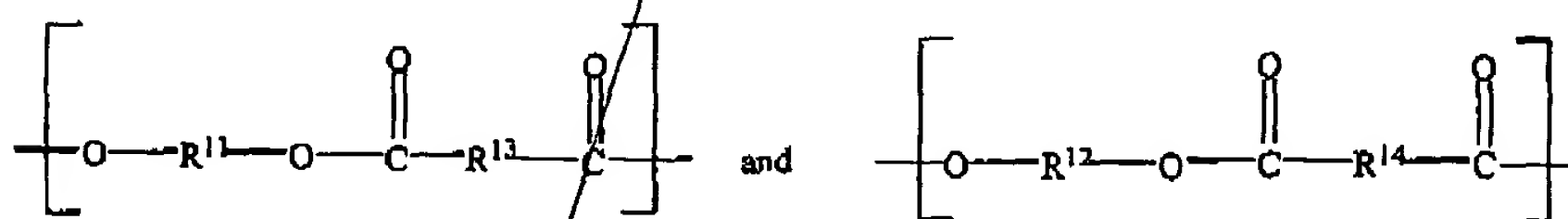
Please amend claims 1, 7, 10, 22 and 24 as follows:

1. (Twice Amended) A method for preparing an article from a biodegradable polymer composition wherein the method comprises:

- a. introducing a phenol-containing compound comprising terpene-phenol resin into a biodegradable polymer or biodegradable polymer composition in an amount sufficient to slow the degradation rate of the biodegradable polymer or biodegradable polymer composition; and
- b. mixing the phenol-containing compound with the biodegradable polymer or biodegradable polymer composition;

wherein the biodegradable polymer or biodegradable polymer composition comprises one or more of:

1. an aliphatic-aromatic copolyester having repeat units of the following structures:



wherein

- (i)  $\text{R}^{11}$  and  $\text{R}^{12}$  are the same or different, and are residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 2,2-dimethyl-1,3-propanediol, 1,3-butanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 2,2,4-trimethyl-1,6-hexanediol, thiodiethanol, 1,3-cyclohexanedimethanol, 1,4-

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cyclohexanedimethanol, 2,2,4,4-tetramethyl-1,3-cyclobutanediol, triethylene glycol, or tetraethylene glycol;

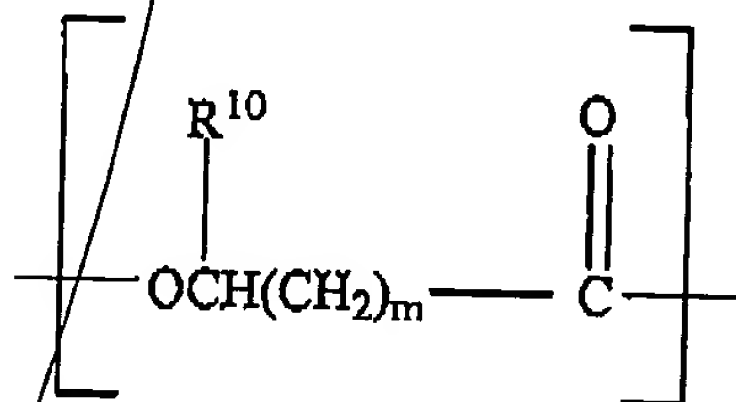
(ii)  $R^{11}$  and  $R^{12}$  are 100% of the diol components in the copolyester;

(iii)  $R^{13}$  is absent or is selected from one or more of the groups consisting of  $C_1 - C_{12}$  alkylene or oxyalkylene;  $C_1 - C_{12}$  alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo,  $C_6 - C_{10}$  aryl, and  $C_1 - C_4$  alkoxy;  $C_5 - C_{10}$  cycloalkylene; and  $C_5 - C_{10}$  cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo,  $C_6 - C_{10}$  aryl, and  $C_1 - C_4$  alkoxy; and

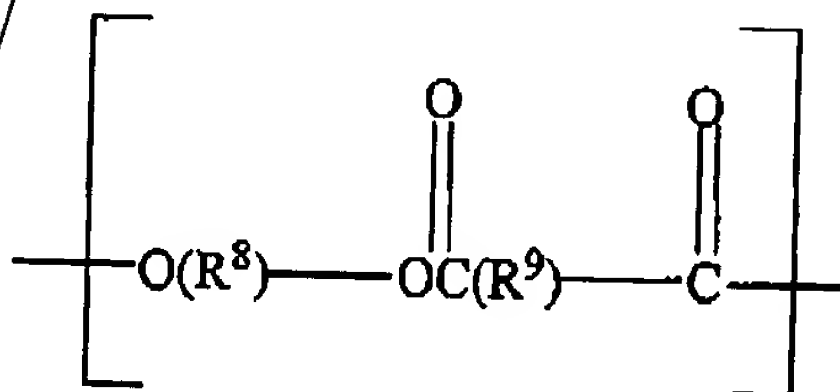
(iv)  $R^{14}$  is selected from one or more of the groups consisting of  $C_6 - C_{10}$  aryl, and  $C_6 - C_{10}$  aryl substituted with one to four substituents independently selected from the group consisting of halo,  $C_1 - C_4$  alkyl, and  $C_1 - C_4$  alkoxy;

2.

an aliphatic polyester having repeat units of one or more of the following structures:



or



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wherein m is an integer of from 0 to 10, and R<sup>10</sup> is selected from the group consisting of hydrogen; C<sub>1</sub>-C<sub>12</sub> alkyl; C<sub>1</sub>-C<sub>12</sub> alkyl substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>5</sub>-C<sub>10</sub> cycloalkyl; and C<sub>5</sub>-C<sub>10</sub> cycloalkyl substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy,

wherein R<sup>8</sup> is selected from the group consisting of C<sub>2</sub>-C<sub>12</sub> alkylene or C<sub>2</sub>-C<sub>12</sub> oxyalkylene; C<sub>2</sub>-C<sub>12</sub> alkylene or C<sub>2</sub>-C<sub>12</sub> oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>5</sub>-C<sub>10</sub> cycloalkylene; C<sub>5</sub>-C<sub>10</sub> cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy, and

wherein R<sup>9</sup> is absent or is selected from one or more of the group consisting of C<sub>1</sub>-C<sub>12</sub> alkylene or oxyalkylene; C<sub>1</sub>-C<sub>12</sub> alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>5</sub>-C<sub>10</sub> cycloalkylene; and C<sub>5</sub>-C<sub>10</sub> cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; and

3) a C<sub>1</sub>-C<sub>10</sub> cellulose ester having a DS equal to or less than about 2.5; and

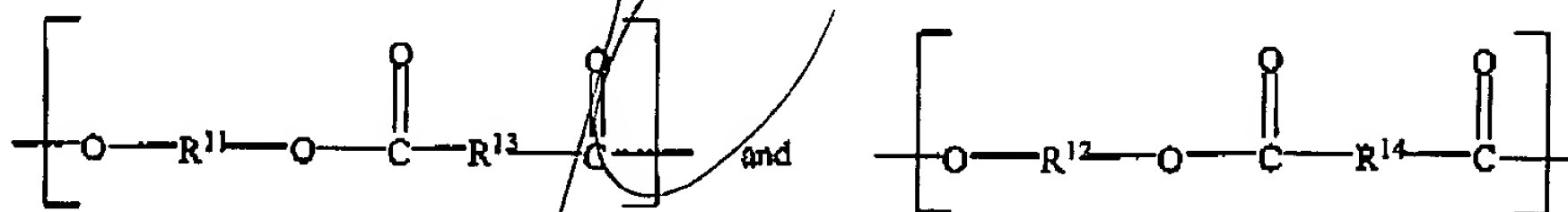
c. forming the biodegradable polymer composition into an article, wherein the article comprises: a film, a bottle, a blow molded article, an injection molded article or a container.

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- B<sup>2</sup>
7. (Twice Amended) The method of claim 1 wherein the biodegradable polymer or biodegradable polymer composition comprises the aliphatic-aromatic copolyester and wherein R<sup>11</sup> and R<sup>12</sup> are the same or different, and are selected from the group consisting of residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 1,3-butanediol, and 1,4-butanediol, R<sup>13</sup> is selected from the group consisting of malonic acid, succinic acid, glutaric acid, adipic acid, pimelic acid, 2,2-dimethyl glutaric acid, diglycolic acid, and an ester forming derivative thereof, and R<sup>14</sup> is selected from the group consisting of one or more of 1,4-terephthalic acid, 1,3-terephthalic acid, 2,6-naphthoic acid, 1,5-naphthoic acid, and an ester forming derivative thereof.

- B<sup>3</sup>
10. (Twice Amended) A method for preparing an article from a biodegradable polymer or polymer composition, wherein the method comprises:
- (a) introducing a phenol-containing compound into a biodegradable polymer or polymer composition in an amount sufficient to slow the degradation rate of the biodegradable polymer or polymer composition; and
  - (b) mixing the phenol-containing compound with the biodegradable polymer or polymer composition, wherein the biodegradable polymer comprises one or more of the following:
    1. an aliphatic-aromatic copolyester having repeat units of the following structures:



wherein

- (i) R<sup>11</sup> and R<sup>12</sup> are the same or different, and are residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 2,2-dimethyl-1,3-propanediol, 1,3-butanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 2,2,4-trimethyl-1,6-hexanediol,

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thiodiethanol, 1,3-cyclohexanedimethanol, 1,4-cyclohexanedimethanol, 2,2,4,4-tetramethyl-1,3-cyclobutanediol, triethylene glycol, or tetraethylene glycol;

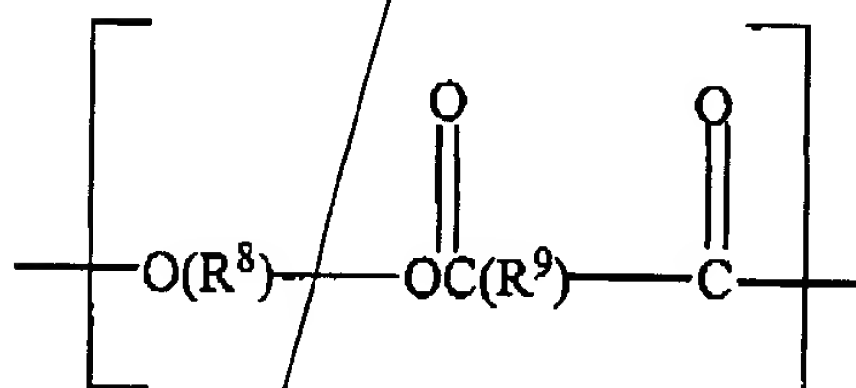
(ii)  $R^{11}$  and  $R^{12}$  are 100% of the diol components in the copolyester;

(iii)  $R^{13}$  is absent or is selected from one or more of the groups consisting of  $C_1 - C_{12}$  alkylene or oxyalkylene;  $C_1 - C_{12}$  alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo,  $C_6 - C_{10}$  aryl, and  $C_1 - C_4$  alkoxy;  $C_5 - C_{10}$  cycloalkylene; and  $C_5 - C_{10}$  cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo,  $C_6 - C_{10}$  aryl, and  $C_1 - C_4$  alkoxy; and

(iv)  $R^{14}$  is selected from one or more of the groups consisting of  $C_6 - C_{10}$  aryl, and  $C_6 - C_{10}$  aryl substituted with one to four substituents independently selected from the group consisting of halo,  $C_1 - C_4$  alkyl, and  $C_1 - C_4$  alkoxy;

B3

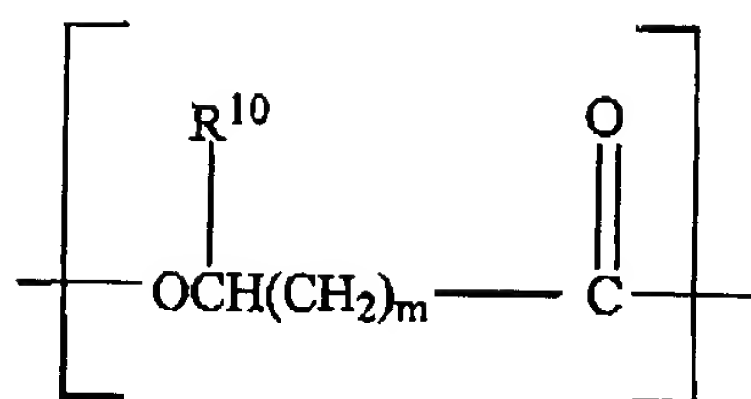
2) an aliphatic polyester having repeat units of one or more of the following structures:



or

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wherein m is an integer of from 0 to 10, and R<sup>10</sup> is selected from the group consisting of hydrogen; C<sub>1</sub>-C<sub>12</sub> alkyl; C<sub>1</sub>-C<sub>12</sub> alkyl substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>5</sub>-C<sub>10</sub> cycloalkyl; and C<sub>5</sub>-C<sub>10</sub> cycloalkyl substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy,

wherein R<sup>8</sup> is selected from the group consisting of C<sub>2</sub>-C<sub>12</sub> alkylene or C<sub>2</sub>-C<sub>12</sub> oxyalkylene; C<sub>2</sub>-C<sub>12</sub> alkylene or C<sub>2</sub>-C<sub>12</sub> oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>5</sub>-C<sub>10</sub> cycloalkylene; C<sub>5</sub>-C<sub>10</sub> cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy, and

wherein R<sup>9</sup> is absent or is selected from one or more of the group consisting of C<sub>1</sub>-C<sub>12</sub> alkylene or oxyalkylene; C<sub>1</sub>-C<sub>12</sub> alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>5</sub>-C<sub>10</sub> cycloalkylene; and C<sub>5</sub>-C<sub>10</sub> cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; and

3) C<sub>1</sub>-C<sub>10</sub> cellulose ester having a DS equal to or less than about 2.5; and

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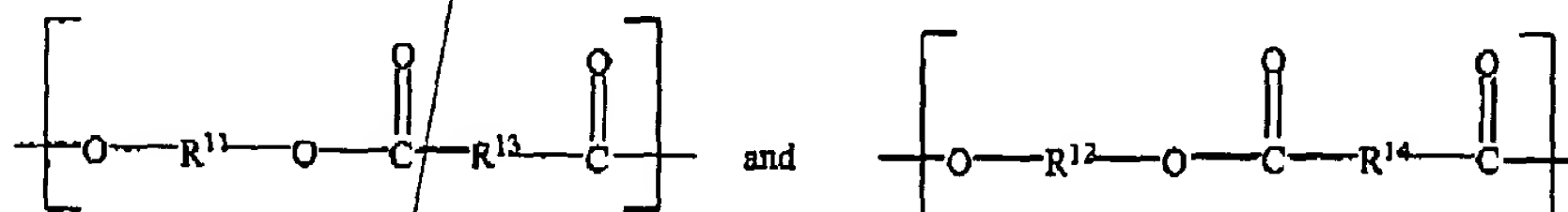
B<sup>3</sup>

(c) forming the biodegradable polymer composition into an article, wherein the article comprises: a film, a bottle, a blow molded article, an injection molded article or a container.

22. (Twice Amended) A biodegradable polymer composition for making an article comprising a film, a bottle, a blow molded article, an injection molded article or a container, wherein the biodegradable polymer or biodegradable polymer-second material composition comprises:

- a. a phenol-containing compound comprising terpene-phenol resin incorporated in the biodegradable polymer or biodegradable polymer-second material composition, the phenol-containing compound being present at an amount sufficient to slow the degradation rate of the biodegradable polymer or biodegradable polymer second-material composition; and
- b. a biodegradable polymer or biodegradable polymer-second material composition comprising one or more of the following:

1. an aliphatic-aromatic copolyester having repeat units of the following structures:



wherein

- (i)  $\text{R}^{11}$  and  $\text{R}^{12}$  are the same or different, and are residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 2,2-dimethyl-1,3-propanediol, 1,3-butanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 2,2,4-trimethyl-1,6-hexanediol, thiodiethanol, 1,3-cyclohexanedimethanol, 1,4-

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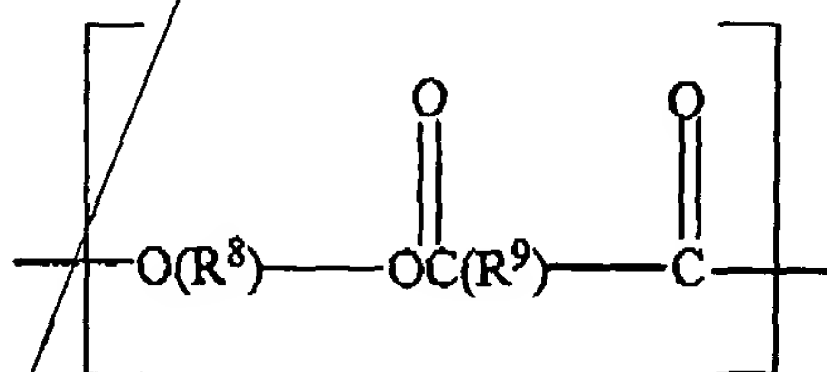
cyclohexanedimethanol, 2,2,4,4-tetramethyl-1,3-cyclobutanediol, triethylene glycol, or tetraethylene glycol;

(ii)  $R^{11}$  and  $R^{12}$  are 100% of the diol components in the copolyester;

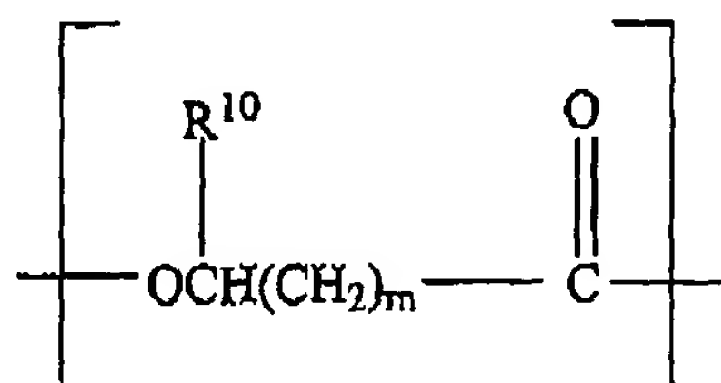
(iii)  $R^{13}$  is absent or is selected from one or more of the groups consisting of  $C_1 - C_{12}$  alkylene or oxyalkylene;  $C_1 - C_{12}$  alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo,  $C_6 - C_{10}$  aryl, and  $C_1 - C_4$  alkoxy;  $C_5 - C_{10}$  cycloalkylene; and  $C_5 - C_{10}$  cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo,  $C_6 - C_{10}$  aryl, and  $C_1 - C_4$  alkoxy; and

(iv)  $R^{14}$  is selected from one or more of the groups consisting of  $C_6 - C_{10}$  aryl, and  $C_6 - C_{10}$  aryl substituted with one to four substituents independently selected from the group consisting of halo,  $C_1 - C_4$  alkyl, and  $C_1 - C_4$  alkoxy;

2) an aliphatic polyester having repeat units of one or more of the following structures:



or





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wherein m is an integer of from 0 to 10, and R<sup>10</sup> is selected from the group consisting of hydrogen; C<sub>1</sub>-C<sub>12</sub> alkyl; C<sub>1</sub>-C<sub>12</sub> alkyl substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>5</sub>-C<sub>10</sub> cycloalkyl; and C<sub>5</sub>-C<sub>10</sub> cycloalkyl substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy,

wherein R<sup>8</sup> is selected from the group consisting of C<sub>2</sub>-C<sub>12</sub> alkylene or C<sub>2</sub>-C<sub>12</sub> oxyalkylene; C<sub>2</sub>-C<sub>12</sub> alkylene or C<sub>2</sub>-C<sub>12</sub> oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>5</sub>-C<sub>10</sub> cycloalkylene; C<sub>5</sub>-C<sub>10</sub> cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy, and

wherein R<sup>9</sup> is absent or is selected from one or more of the group consisting of C<sub>1</sub>-C<sub>12</sub> alkylene or oxyalkylene; C<sub>1</sub>-C<sub>12</sub> alkylene or oxyalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; C<sub>5</sub>-C<sub>10</sub> cycloalkylene; and C<sub>5</sub>-C<sub>10</sub> cycloalkylene substituted with one to four substituents independently selected from the group consisting of halo, C<sub>6</sub>-C<sub>10</sub> aryl, and C<sub>1</sub>-C<sub>4</sub> alkoxy; and

3) C<sub>1</sub>-C<sub>10</sub> cellulose ester having a DS equal to or less than about 2.5.

24. (Once amended) The biodegradable polymer composition of claim 23 wherein the biodegradable polymer or biodegradable polymer-second material composition comprises the aliphatic-aromatic copolyester and wherein R<sup>11</sup> and R<sup>12</sup> are the same or different, and are selected from the group consisting of residues of one or more of diethylene glycol, propylene glycol, 1,3-propanediol, 1,3-butanediol, and 1,4-butanediol, R<sup>13</sup> is selected from the group consisting of malonic acid, succinic acid, glutaric acid, adipic acid, pimelic acid, 2,2-dimethyl glutaric acid, diglycolic acid, and